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10/639,463	08/13/2003	Toshihiko Ogura	110519.01	6729
25944	7590	10/04/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			MALLARI, PATRICIA C	
			ART UNIT	PAPER NUMBER
			3736	

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/639,463

Applicant(s)

OGURA, TOSHIHIKO

Examiner

Patricia C. Mallari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 3-5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 6-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/942865.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/16/03, 8/13/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Election/Restrictions***

This application contains claims directed to the following patentably distinct species of the claimed invention:

I. An apparatus and method for detecting a heart sound of a living subject, wherein the heart sound extracting means extracts a heart sound component having frequencies above 30 Hz to 600 Hz.

II. An apparatus for obtaining information relating to a velocity at which a pulse wave propagates through an artery of a body portion of a living subject, wherein an information obtaining means for obtaining information based on at least first timing at which the pressure pulse wave sensor of the heart sound detecting apparatus detects a prescribed periodic portion of the heart sound.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include

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all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with Michael Britton on September 29, 2004 a provisional election was made with traverse to prosecute the invention of Group I, claims 1, 2, and 6-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3-5 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Objections***

Claims 1, 2, 6, and 7 are objected to because of the following informalities:

on line 6 of claim 1, "an air" should be replaced with "air";

on line 6 of claim 2, "an air" should be replaced with "air";

on line 12 of claim 6, "an air" should be replaced with "air";

on line 5 of claim 7, "an air" should be replaced with "air". Appropriate correction

is required.

### ***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 6, 7, 9, 11, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,031,630 to Hirano et al. in view of Hirano teaches a pressure pulse wave sensor having a press surface adapted to be pressed on a body portion of the subject that is distant from a chest of the subject, without intervention of air between the press surface of the sensor and the body portion, the sensor generating a pressure pulse wave signal representing the detected pulse pressure wave (col. 3, line 48-col. 4, line 3; fig. 1 of Hirano). A pressing device 10 presses the pressure pulse wave sensor so that the press surface of the sensor is pressed on the body portion of the subject (col. 4, lines 43-48 of Hirano). A heart sound extracting means 30 extracts a heart sound component from the pressure pulse wave signal generated by the pressure pulse wave sensor 18-28 (col. 4, lines 4-17 of Hirano). Hirano is silent as to the frequency range of the heart sound component extracted.

Bui discloses that heart sounds, or Korotkoff sounds occur in a frequency bandwidth of 25 to 200 Hz (col. 1, lines 54-56 of Bui). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention for the heart sound extracting means of Hirano to extract a heart sound component within the range of 25 to 200 Hz since Hirano teaches a means for extracting a heart sound, and Bui discloses that heart sounds occur in the range of 25 to 200 Hz.

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Regarding claim 2, the pressure pulse wave sensor has a press surface 10a adapted to be pressed on a body portion and a plurality of pressure sensing elements 18-28 provided in the press surface and arranged in a widthwise direction of an artery of the body portion (fig. 1; col. 3, line 48-col. 4, line 3 of Hirano). The pressing device 10 presses the pressure pulse wave sensor 10a, 18-28 on the body portion of the subject (col. 4, lines 42-47 of Hirano). An optimum element selecting means 34 selects one of the pressure sensing elements 18-28 in the press surface 10a as an optimum pressure sensing element, based on respective magnitudes of the respective pressure pulse wave signals generated by the pressure sensing elements 18-28 (col. 5, lines 20-44 of Hirano).

Regarding claims 6 and 13, an inflatable cuff 10 is adapted to be wound around an upper arm of the subject, the inner surface 10a of which acts as a pressing device which presses the pressure pulse wave sensor 1-2 so that the press surface of the sensor 18-28 is pressed on the upper arm (col. 3, lines 47-50; col. 4, lines 43-54 of Hirano). A blood pressure determining means 34 determines a blood pressure of the subject based on a signal produced in the cuff while a pressing pressure of the cuff is gradually changed (col. 6, lines 8-30 of Hirano).

Regarding claims 7, 13, and 15, the method of using the apparatus of Hirano as described above is disclosed (col. 5, lines 14-col. 6, line 48).

Regarding claims 9, 11, and 15 the pressure pulse wave sensor 18-28 comprises no inflatable portion (col. 3, lines 48-50).

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Claims 1, 2, and 6-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano in view of US Patent No. 4,938,227 to Niwa et al. Hirano teaches a pressure pulse wave sensor having a press surface adapted to be pressed on a body portion of the subject that is distant from a chest of the subject, without intervention of air between the press surface of the sensor and the body portion, the sensor generating a pressure pulse wave signal representing the detected pulse pressure wave (col. 3, line 48-col. 4, line 3; fig. 1 of Hirano). A pressing device 10 presses the pressure pulse wave sensor so that the press surface of the sensor is pressed on the body portion of the subject (col. 4, lines 43-48 of Hirano). A heart sound extracting means 30 extracts a heart sound component from the pressure pulse wave signal generated by the pressure pulse wave sensor 18-28 (col. 4, lines 4-17 of Hirano). Hirano is silent as to the frequency range of the heart sound component extracted.

Niwa teaches a blood pressure measuring device and method in a first filter removes a first heart sound component having frequencies in the range of 20 to 50 Hz from the pulse wave signal detected by pressure pulse waves sensor 30. A second filter removes a second component from the pulse wave signal having frequencies not lower than 50 Hz (col. 2, lines 44-49; col. 4, line 57-col. 5, line 12 of Niwa et al.) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Niwa with the apparatus and method of Hirano et al. in order to accurately measure blood pressure by measuring heart sounds, wherein the heart sounds are clearly separated from noise mixed therewith when the heart sounds are detected (col. 1, lines 51-56 of Niwa).

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Regarding claim 2, the pressure pulse wave sensor has a press surface 10a adapted to be pressed on a body portion and a plurality of pressure sensing elements 18-28 provided in the press surface and arranged in a widthwise direction of an artery of the body portion (fig. 1; col. 3, line 48-col. 4, line 3 of Hirano). The pressing device 10 presses the pressure pulse wave sensor 10a, 18-28 on the body portion of the subject (col. 4, lines 42-47 of Hirano). An optimum element selecting means 34 selects one of the pressure sensing elements 18-28 in the press surface 10a as an optimum pressure sensing element, based on respective magnitudes of the respective pressure pulse wave signals generated by the pressure sensing elements 18-28 (col. 5, lines 20-44 of Hirano).

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Regarding claims 7, 13, and 15, the method of using the apparatus of Hirano as described above is disclosed (col. 5, lines 14-col. 6, line 48).

Regarding claims 9, 11, and 15 the pressure pulse wave sensor 18-28 comprises no inflatable portion (col. 3, lines 48-50).

### ***Conclusion***



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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


US Patent No. 5,243,992 to Eckerle et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia C. Mallari whose telephone number is (703) 605-0422. The examiner can normally be reached on Monday-Friday 10:00 am-6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (703) 308-3130. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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